

Reducing Demand for Natural Gas in California

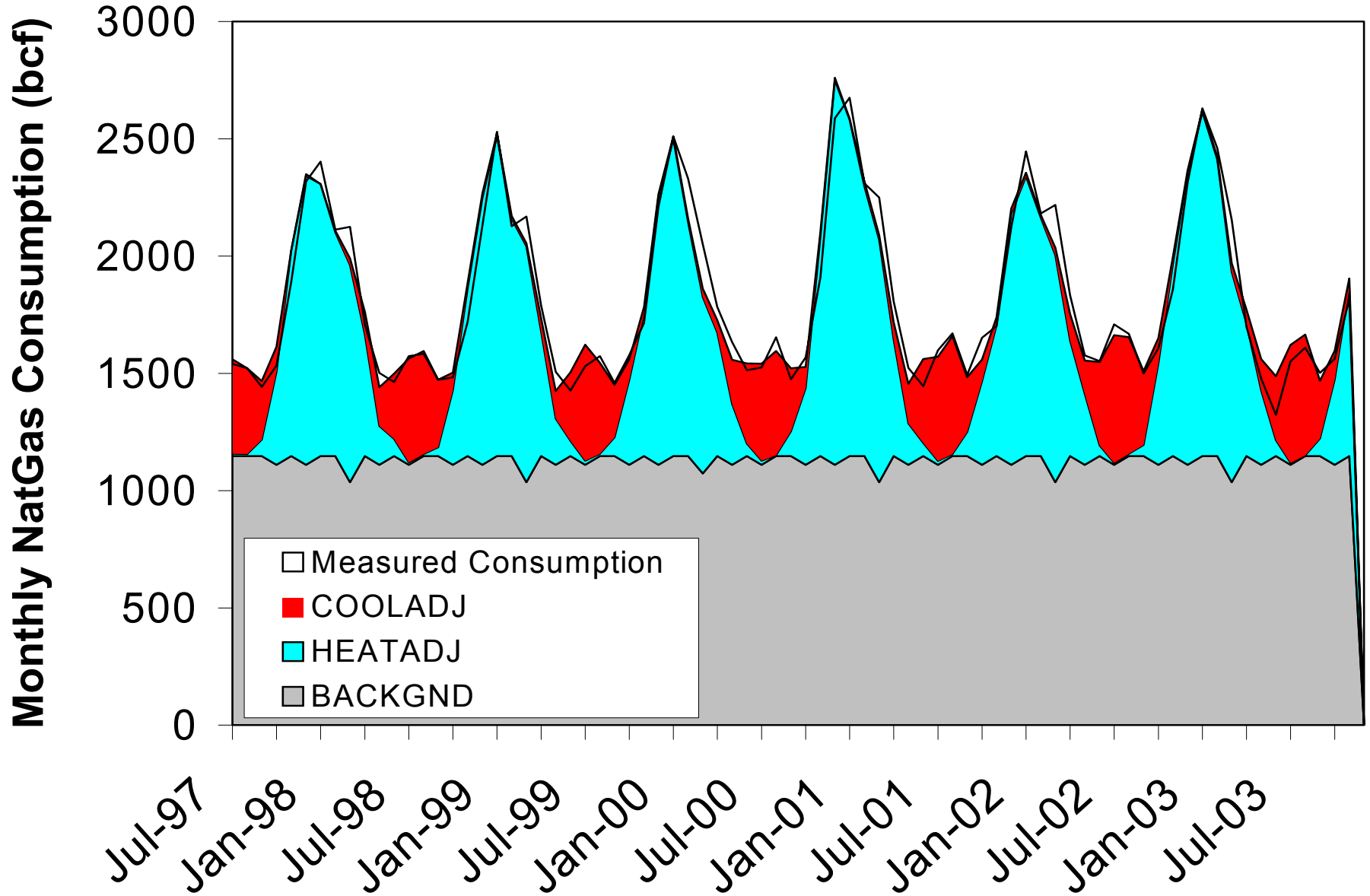
Natural Gas Market Outlook
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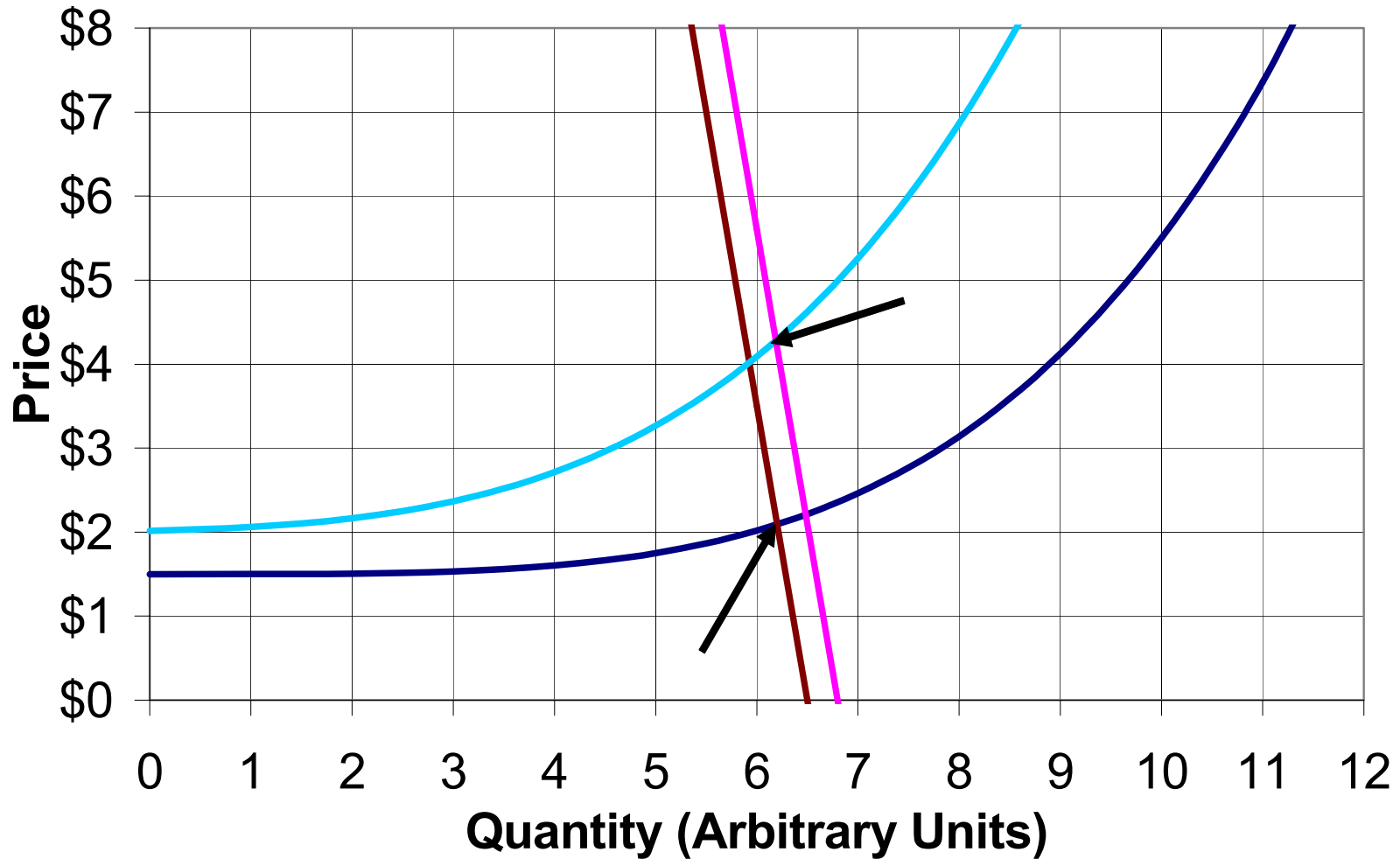
National Background

- US gas demand has remained essentially flat since 1997, but prices have doubled.
- Gas prices will stay high or go higher.
- In the longer term, new supply options may stabilize prices, but price reductions are unlikely .

US Temperature - NatGas Correlation



Supply - Demand Illustration



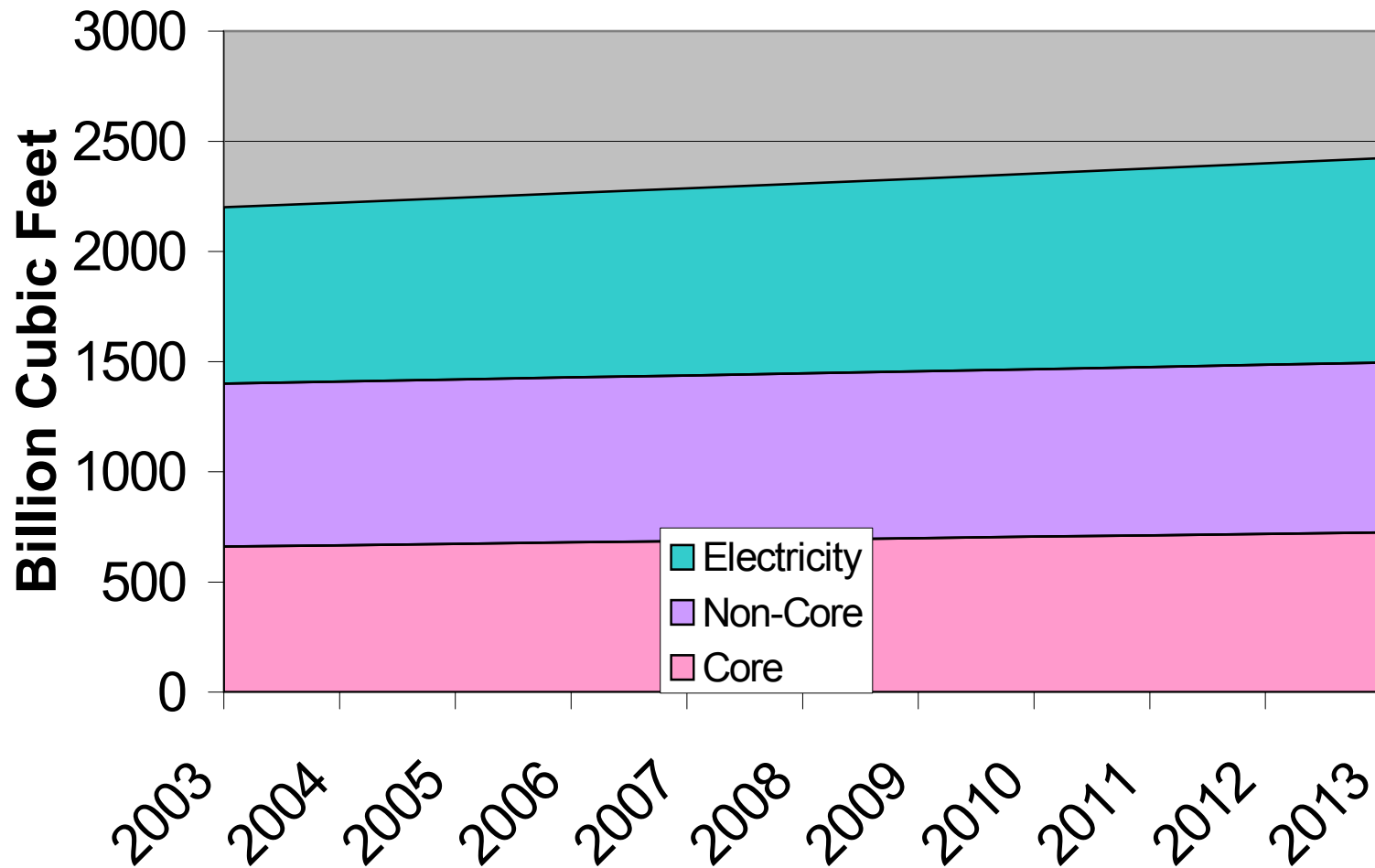
Implications for California

- California should prepare for gas supplies to become even more expensive.
- Unusually warm summers and/or cold winters could result in extreme prices and perhaps forced curtailments.
- Despite future imports of gas from Alaska and from other continents as LNG, US and Canadian production is likely to set the market price for many years.

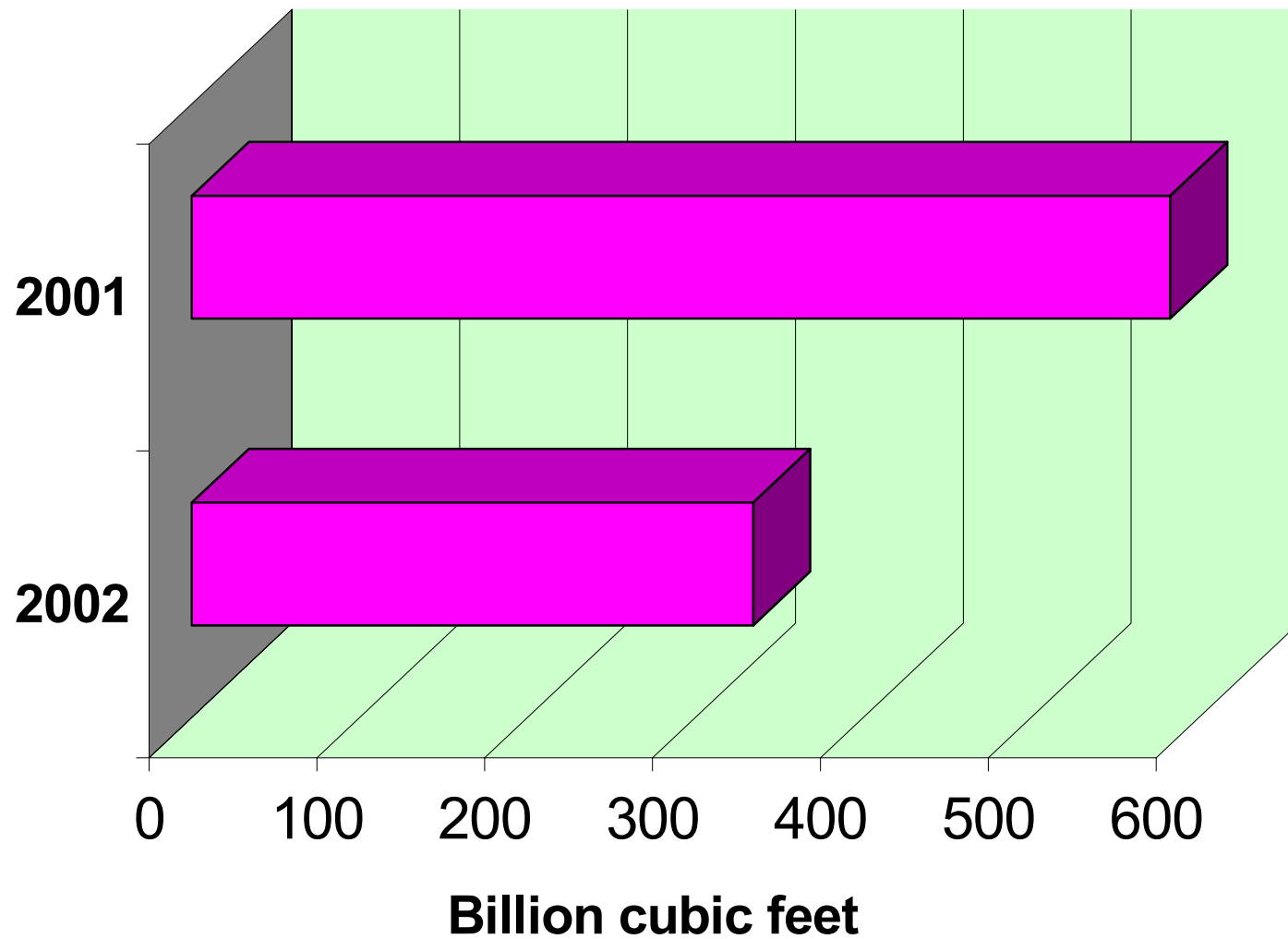
California Situation

- CEC projects that gas demand for electricity generation will increase 1.5% per year.
- Demand in 2002 was unusually low due to a good hydro year, mild weather, and economic sluggishness.
- Efforts to **decrease** consumption of natural gas are valuable.

CA NatGas Demand Projections, CEC (approximate)



Gas Demand by Large California Power Plants



How can California reduce its demand for natural gas?

- Increase end use efficiency of electricity and gas.
- Accelerate the development of renewable energy resources.
- Deploy combined heat and power (CHP) technologies where feasible.
- Improve the efficiency of central station gas-fired power plants.

Improving end use efficiency

- Inefficiency is caused by older equipment remaining in service.
- Efforts should focus on removing inefficient equipment.
- Industrial sector appears to have the greatest potential.
 - Potential gas savings alone are estimated at 50 bcf/yr.
 - 100 largest sites use 2/3 of sector gas.

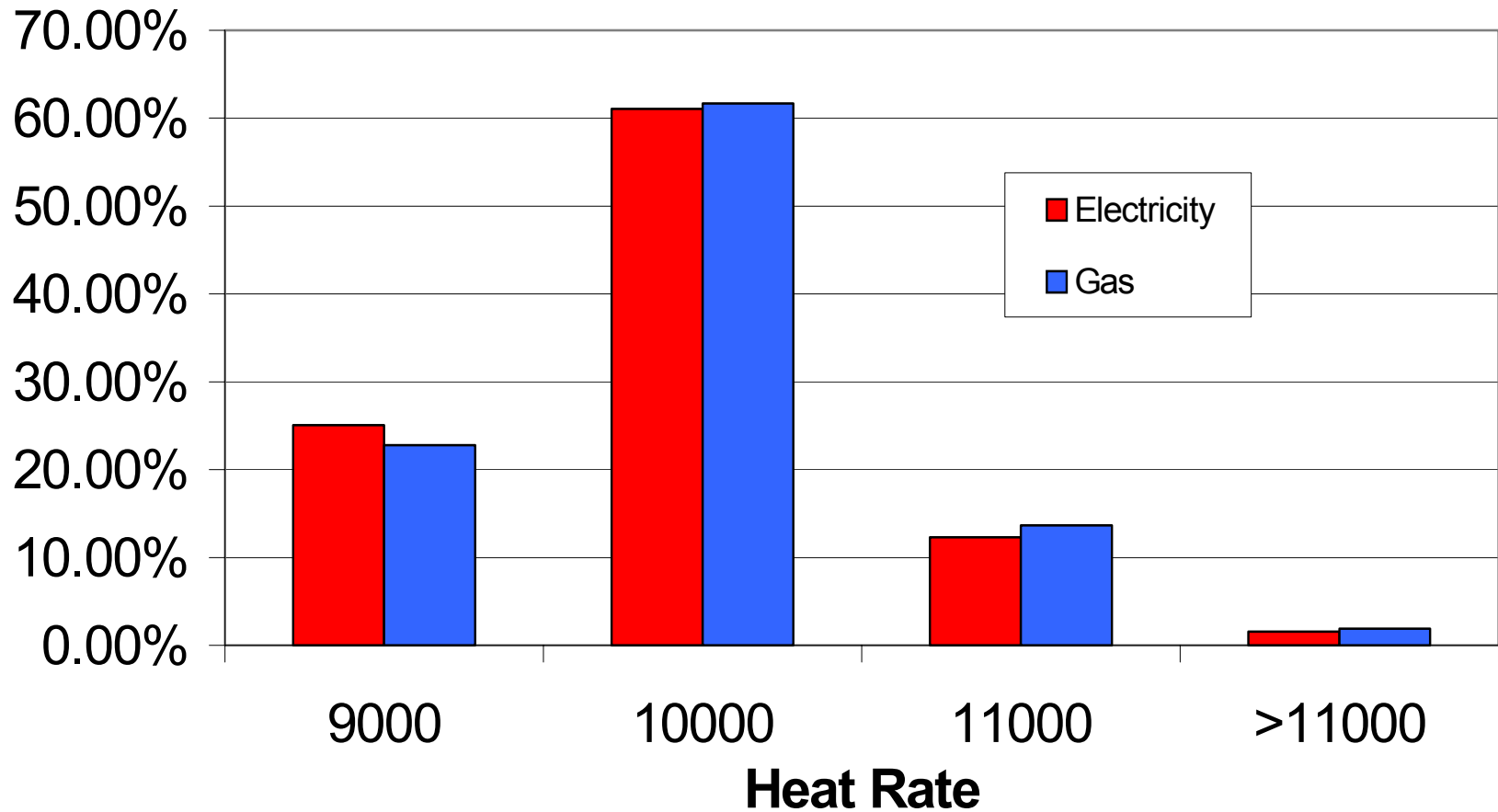
Solar water heating

- Residential water heating accounts for 10% of California gas consumption.
- Modern, passive, batch solar water heaters (preheaters)
 - Reduce household demand 50%;
 - Are simple and maintenance free;
 - Are cost effective in new construction.
- Building standards for suitable regions should require installation.

Reducing gas demand on the supply-side

- Deploy combined heat and power (CHP) technologies where feasible.
- Accelerate the development of renewable energy resources.
- Significantly improve the efficiency of stand-alone gas-fired power plants.

California Gas Consumption and Electricity Generation (Major Plants by Heat Rate, 2001-2002)



Barriers to new efficient power plants in California

- Uncertainty over the role of renewable resources.
- Uncertainty over power plant ownership – merchants or IOUs?
- Uncertainty over direct access.
- Transmission constraints.
- Exit fees (for CHP).

Summary

- Cost effective technologies exist on demand- and supply-sides to reduce gas demand 20% or more.
- Achieving savings requires clear policy goals for efficiency, CHP, renewables, new central station plants, and transmission.
- Clarification of the future role of utilities is essential.